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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PLANT ALPHA FARNESENE SYNTHASE AND POLYNUCLEOTIDES ENCODING SAME

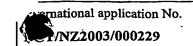
(57) Abstract: The present invention provides an isolated alpha-farnesene synthase and polynucleotide sequences encoding the enzyme. The invention also provides nucleic acid constructs, vectors and host cells incorporating the polynucleotide sequences. It further relates to the production of alpha-farnesene using the enzyme and modulation of alpha-farnesene synthesis in plants and selection of plants with altered alpha-farnesene synthase activity.

CLASSIFICATION OF SUBJECT MATTER A. Int. Cl. 7: C12N 15/29, 15/60, 9/88; A01H 5/00 According to International Patent Classification (IPC) or to both national classification and IPC В. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) SEE BELOW Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched SEE BELOW Blectronic data base consulted during the international search (name of data base and, where practicable, search terms used) AGRICOLA: farnesene or sesquiterpene synthase, apple DGENE, PROTEIN DATABASES (PIR, SWISSPROT, EMBL, GENPEP): Seq ID 2, sesqui, mono, di terpene, farnesene DOCUMENTS CONSIDERED TO BE RELEVANT C. Relevant to Citation of document, with indication, where appropriate, of the relevant passages Category* claim No. Genpept Accession No AAO22848 (11 July 2003) Pechous SW et al (E,E) -alpha-farnesene synthase [Malus x domestica] All PX Identical to SEQ ID NO 2 DGENE Accession No AAB29400 & JP 2000245482 A (SOZOTEKI SEIBUTSU KOGAKU KENKYUSHO KK) 12 September 2000 See abstract and sequence (38% identity, 59% similarity Seq ID 2) 1, 2, 13, 19-X 22, 24-26, 28, 29, 37, 40 See patent family annex $|\mathbf{x}|$ Further documents are listed in the continuation of Box C Special categories of cited documents: later document published after the international filing date or priority date "A" document defining the general state of the art which is not considered to be of particular and not in conflict with the application but cited to understand the principle or theory underlying the invention document of particular relevance; the claimed invention cannot be "E" earlier application or patent but published on or considered novel or cannot be considered to involve an inventive step after the international filing date when the document is taken alone document of particular relevance; the claimed invention cannot be "L" document which may throw doubts on priority considered to involve an inventive step when the document is combined claim(s) or which is cited to establish the with one or more other such documents, such combination being obvious to publication date of another citation or other special reason (as specified) a person skilled in the art · 11 & 11 "O" document referring to an oral disclosure, use, document member of the same patent family exhibition or other means document published prior to the international filing date but later than the priority date claimed Date of the actual completion of the international search Date of mailing of the international search report 23 JAN 2004 19 January 2004 Name and mailing address of the ISA/AU Authorized officer **AUSTRALIAN PATENT OFFICE** PO BOX 200, WODEN ACT 2606, AUSTRALIA TERRY MOORE E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929 Telephone No: (02) 6283 2632

	PC1/NZ2003/	000229			
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT					
Category*	Citation of document, with indication, where appropriate, of the relevant passages				
x	Vasantha Rupasinghe HP et al "Sesquiterpene α-farnesene synthase: Partial purification, characterization, and activity in relation to superficial scald development in apples" J Amer Soc Hort Sci (2000) 125(1), pages 111-119 See whole document, in particular Materials and Methods and Results				
	WO 1999 015624 A1 (WASHINGTON STATE UNIVERSITY RESEARCH FOUNDATION) 1 April 1999				
x	See in particular example 5, SEQ ID NOS 1 and 2 (38% identity, 59% similarity with SEQ ID NO 2)				
	WO 2000 017327 A2 (UNIVERSITY OF KENTUCKY RESEARCH DEPARTMENT ET AL) 30 March 2000				
X	See in particular SEQ ID NO 26, claims 144-161 (38% identity, 59% similarity with SEQ ID NO 2)	1, 2, 13, 19- 22, 24-26, 28 31, 38, 40			
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INTERNATIONAL SEARCH REPORT

Information on parent family members



This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

WO 00							
W O	17321	CA	2344399	EP	1112348	US	6582960
WO 99	15624	AU	95096/98	CA	2304799	EP	1017788
		US	5891697				
JP 20	000245482						